

A Proposal to Consider Positioning as Praxis in Mathematics Education

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Abstract

Research related to the idea of positioning has existed in mathematics education for almost two decades, more recently drawing on positioning theory. The majority of this research has focused on articulating the theory for mathematics education or empirically exploring mathematics classroom and teacher professional development. Here I propose that, given what the field has learned so far, it's time to ask, *Should mathematics education researchers' work related to positioning be oriented around action, or only toward building a field of work that rarely gets read or used outside of academia?* I propose positioning as praxis as fruitful next steps and offer two beginning examples of how this might occur, while recognizing that there is still more work to be done to realize such a shift.

Keywords: Discourse, Participatory Research, Positioning, Praxis

Introduction

...the word 'position' sneaks into conversations about dispositions, impositions, juxtapositions, oppositions, propositions, and transpositions. These position words are similar to each other because they are all nouns, but dispositions seem more stable than propositions, juxtapositions, transpositions, and oppositions because people talk about having dispositions. By contrast, an imposition, proposition, juxtaposition, or opposition is made—made in relation to other people or to other people's arguments. This difference raises questions for us about how these words emphasize different aspects of mathematics learning. Should mathematics teaching be oriented around equipping students for action, or building a particular identity (Wagner & Herbel-Eisenmann, 2009)?

The idea of students and teachers taking up different positions has appeared in journals and books in mathematics education since at least the early 2000s (e.g., Lerman, 2001; Zack & Graves, 2001). These studies were grounded in sociocultural theory. Starting in 2009, however, there was an upsurge in this idea and researchers began to explore positioning theoretically (Wagner & Herbel-Eisenmann, 2009) and to use it as a theoretical lens to investigate mathematics classrooms (e.g., Anderson, 2009; Esmonde, 2009; Yamakawa et al., 2009). Since then, the literature in mathematics education has grown in its focus on positioning, drawing both on positioning theory and figured worlds (see Herbel-Eisenmann, et al., 2017b for more about the range of work focused on positioning). Thus, for more than two decades these ideas have been explored and used in mathematics education. Parallel to the question posed by Wagner and Herbel-Eisenmann in 2009, I

ask at this point in time, *Should mathematics education researchers' work related to positioning be oriented around action, or only toward building a field of work that rarely gets read or used outside of academia? How might positioning be enacted as a verb, even in our process of doing research?*

Given various aspects of positioning theory, and in particular those grounded in feminist and post-structural theories, I propose in this paper that in order for these ideas to support change in mathematics education, it is time for the field to take it up as a form of praxis. Taking a stance of positioning as praxis would align well with participatory work in schools and communities, which has a commitment to, for example, examining and taking action related to issues of power (e.g., McTaggart, 1991). Given the role mathematics education often plays in schools, in terms of its role in creating hierarchies and filtering youth in/out of various life opportunities, praxis and participatory work is needed even more to “rehumanize” (Gutiérrez, 2018) mathematics and the damaging storylines that can be perpetuated, for example, by media (e.g., Andersson et al., 2022b) and other societal and institutional influences (e.g., Shah, 2017). As Gutiérrez (2018) states, taking a central focus on students who the system has most failed “does not mean simply supporting students who are Indigenous, Black, and Latinx to do well by Whitestream standards. It means developing practices and measures that feel humane to those specific communities as a means to guide the field” (p. 2).

I first share some ways authors have written about praxis and, rather than explain all aspects of positioning theory (see Wagner & Herbel-Eisenmann, 2009, for such articulation), identify aspects of it that meld well with potential leanings toward action and change. To offer how such leanings might occur in mathematics education, I briefly share two attempts to use positioning as praxis in recent collaborations with university- and teacher-researchers in the US and in schools in Norway that serve newcomers and Indigenous youth. As a white, monolingual, US-born, settler who works in contexts with youth who identify along a range of racial, ethnic, linguistic, gender, and socioeconomic identities (and in one context where I do not live), I have struggled with some

things to better support the youth with whom they work by creating more humanizing educational spaces. On a personal note, pushing myself to deeply consider praxis and participatory approaches also helps me become clearer on my own researcher positionality, epistemology, ethics, and practices, which are strongly tied to relationships and context. This is a beginning foray into these ideas, while I recognize there is more to read, more synthesis to do, and more questions to ask.

Praxis

Literature on Praxis from Outside of Mathematics Education

The relationship between theory and practice has long been debated, with some authors elevating theory as ‘real’ knowledge and practice as being described as ‘doing’ something. Some authors trace this distinction back to Aristotle (e.g., Allsup, 2003; Boylan, 2016; Carr & Kemmis, 1986; Kemmis & Smith, 2008) because he distinguished the purposes (or *telos*) of three kinds of disciplines. According to Carr and Kemmis (1986):

The purpose of a theoretical discipline is the pursuit of truth through contemplation; its *telos* is the attainment of knowledge for its own sake. The purpose of the productive sciences is to make something; their *telos* is the production of some artefact. The practical disciplines are those sciences which deal with ethical and political life; their *telos* is practical wisdom and knowledge (p. 32).

Allsup (2003) points out that many disparate philosophers (e.g., Aristotle, Marx, Sartre, Bourdieu) have written about praxis and focuses on two people’s perspectives in education: Maxine Greene and Paulo Freire. Greene, he explains, focuses on the conditions for praxis, within “the capacity to look at things as if they could be otherwise” (Greene, 2001). He argues that this perspective connects nicely to Freire’s (1970) definition of praxis as “action and reflection” (p. 106). One commonality he identifies between Greene and Freire is that “transformational or liberatory practice cannot be separated from an engagement with *and* an objective distance from our culture (or cultural forms such as love songs and requiems). Engagement is both action-based (composing, performing) and epistemological (perceiving, recognizing, linking)” (pp. 158–159). It includes “a commitment to human well being and the search for truth, and respect for others”

(Smith, 1999/2011). Praxis rejects the idea that research can be neutral or objective and is instead

committed to justice and action that can create change; it makes central the consideration of the social, political and economic implications of practice and research (Freire, 1970; Zuber-Skerritt, 2001). One critique of these conceptualizations of praxis is that, although they are committed to justice, Glass (2001) points out that:

The theory does not adequately recognize that race, class, and gender oppressions are geared to specific concrete conditions that can be contradictory, such that simultaneous positions of oppression and dominance can be occupied by particular individuals (for example, someone privileged by racial and class location but oppressed by the gender order, as with a White middle-class woman) (p. 21).

To address this critique of Freirean praxis, more recent work about praxis that attends to such intersections needs to be considered. Zembylas (2018), for example, pointed out that Freirean theory and critical pedagogy “have ignored the White settler colonial imperatives behind the use and performance of the language and tools of critical pedagogy (Mackinlay and Barney 2014; Tuck and Yang 2012)” (p. 404). In this article, Zembylas articulates a way to reinvent critical pedagogy as a “decolonizing pedagogy” centered in a kind of empathy that “inspires modes of affective perspective-taking and affective practices that call subjects (e.g., teachers, students, parents) into account for their own complicity in perpetuating coloniality” (p. 405).

Black feminism, historically and as a movement, is also important to consider because it is “built on resistance to racial, gender, sexist, classist oppression... [and] contains the tools for liberatory praxis” (Baldwin et al., 2021, p. 5). Black feminists have contributed to important writing and have done at least three important things relevant to social justice interventions in education: 1) “sharing and documenting foundational principles and strategies” such as the “organizing principle of horizontal leadership”; 2) “work[ing] to hold the general public and those in positions of power accountable in real time”; and 3) “provid[ing] ways of being present in community while historicizing the movement for future generations” (Baldwin et al., 2021, p. 5). As Baldwin et al. (2021) point out:

Using a decolonial approach to enact social justice interventions in education therefore needs grounding in complex histories of racial formations of power to advance a praxis committed to an expansive understanding of decolonization as part of what Hundle (2019)

refers to as ‘a much larger archive of anticolonial thought: the study of settler and/or non-settler colonial projects and the colony itself, studies of colonial mind-sets and attitudes’ (p. 298) (p. 8).

These authors also connect praxis to intersectionality because it was an idea from legal studies grounded in identifying social problems and also with “strategies for social movement that respond to the embodied, discursive, hegemonic, and sociopolitical violence of white supremacy” (p. 14). In a special issue of *Signs*, Cho et al. (2013) further articulate intersectionality as praxis, as it has been articulated and used as a “key site of intersectional critique and intervention” and “as a tool to interrogate and intervene in the social plane” (p. 786). They provide several examples of social movements outside of education that illustrate intersectionality as praxis. Within education, there is also work highlighting intersectionality as praxis that needs to be further explored because such work “demands that our scholarship be oriented toward (a) accounting for the ways that race/ethnicity, class, gender, sexuality, religion, citizenship, ability, and age, among other things, shape the structural dynamics of power and inequality in social spaces and individual identities (Carbado et al., 2013; Collins, 2015); and (b) strengthening the synergy between critical inquiry and praxis” (Tefera et al., 2018, p. viii).

Literature on Praxis Within Mathematics Education

In mathematics education literature, authors using the idea of praxis connect their work to sociopolitical perspectives. Mathematics education scholars and activists have written and drawn extensively on Freirean ideas and his articulation of praxis, for example. In the early 1980s, Frankenstein (1983) brought together Freire’s epistemology, his theory about the relationship between education and social change, and his methodology for developing critical consciousness. In this exploration, she addresses his view on praxis—“reflection and action dialectically interacting to re-create reality” (p. 317)—as a central way for people to become agentic in organizing their society. She explores these ideas further, for example, in Powell & Frankstein (1997), which includes a section focused on Ethnomathematical praxis. In this kind of praxis, they emphasize the

deep epistemological connections between activities like adults handling money and students racing pigeons as “created and recreated in praxis” (p. 194). They also emphasize that praxis is not neutral and see it as important to breaking down “the dichotomies between teaching and learning, between formulating research questions and finding answers” (Frankenstein & Powell, 1994, p. 92).

In his work on teaching mathematics for social justice, Gutstein (2007) explains his central goal, which is grounded Freire’s commitment to praxis and student agency:

His insistence on *praxis*—the unity of reflection and action—and his focus on learners starting with their own life experiences reading the world, positioned students as capable of shaping society—writing the world. He espoused that teachers defend their views while creating problem-posing pedagogies and appropriate spaces so that students develop their own viewpoints, critically engage their worlds, transform their consciousness, and participate in their own emancipation (p. 423).

In addition to using Freirean ideas, Gutstein locates his work in a longer tradition of the historical struggles for emancipatory education, drawing on a range of authors. He cites Perry (1996, 2003), who has outlined a philosophy of African American education, an “education for freedom, racial uplift, citizenship, and leadership” (Gutstein, 2003, p. 93). The more contemporary work in mathematics education he connects to is the work of Bob Moses and the *Algebra Project* (Moses & Cobb, 2001), which was based on the freedom struggles of the Civil Rights movement. Although Gutstein explicitly states that these are not identical, both view teachers and students as needing to partner in a common struggle to disrupt and dismantle oppression toward liberation and both put forth that teachers need to create environments for students to develop sociopolitical awareness and a sense of agency. His writings highlight, for example, how he and his students engaged in praxis, including the changes they were able to make, the deliberations they engaged in and the many challenges and contradictions they encountered (e.g., Gutstein, 2006; 2012).

Embracing a critical postmodern perspective, Stinson and Bullock (2012) propose a praxis of uncertainty in mathematics education research. Connecting to Freire (1970/2000), they write:

we see praxis as a continuous cycle of action and reflection in which sacrificing action equates to empty verbalism while sacrificing reflection equates to mere activism. Freire believed: “There is no true word that is not at the same time praxis. Thus, to speak a true word is to transform the world” (p. 87). But here, within a praxis of uncertainty, *speaking a*

true word and *transforming the world* are both left open to multiplicitous possibilities; we can only know what these phrases might mean “in not-ever-knowing but in continuing to learn [and do] something of that ‘not-ever’ of knowing” (I. Stronach, as cited in Brown & Jones, 2001, p. 104) (Stinson & Bullock, 2012, p. 49).

They illustrate how three authors do not reduce people and mathematics to static objects of inquiry and thus how this praxis of uncertainty can be “critically disruptive of the dehumanizing status quo, while simultaneously motivating a space of ‘not-ever-knowing’” (p. 52).

Bullock (2018) uses the metaphor of figure hiding to highlight how critical mathematics education (CME) addresses “social *isms*” that occur, including sexism, racism, colonialism, etc., but tends to address these as if they are silos. Through a critical analysis of articles related to CME, Bullock highlights how people might experience forms of oppression and also shows how attention to additional models within the framework of intersectionality can help reflect additional and compounded forms of oppression that many people experience. She highlights the significant commitment to praxis in this work and how women of color who have advanced this theory have maintained it throughout its conceptualization: “Given this legacy” she goes on to write, “it is not enough to think through the multiple ways in which oppression weighs on various identities, but it is the scholar’s responsibility to use her or his power to do something in response” (p. 128). She articulates a set of categories for intersectional analysis that push CME research to move beyond an “identity model” toward an intersectional approach. Not doing so, she convincingly explains, limits CME’s potential for praxis toward justice.

Grounded in values that connect to moral reasoning, ethics and attending to justice, care and other qualities, Boylan (2016) proposes an ethical praxis based on “principles of flexibility and a dialogic relationship to the world and practice” (p. 1). He also draws on critical and postmodern perspectives, focusing choices and judgment on the existing situation and relationships (rather than against a desired endpoint) and ethical pluralism grounded in “the uniqueness of the ethical actor in each concrete situation” (pp. 398–399). He argues that ethical reasoning concerns our personal

action. Such a perspective also relates, for example, to Milner's (2007) use of critical race theory to engage researcher positionality across the personal, interpersonal, and structural levels of our engagement with communities. Boylan identifies four sources of ambiguity related to the range of ethical choices mathematics educators make: "firstly, that the same action may both serve to realise an ethical commitment and to hinder it; secondly, the unknowability of the effects of action; thirdly, tensions between different commitments; and, fourthly, the situated nature of the relevance of different commitments including the relative importance ascribed to different dimensions in particular situations" (p. 406). These ambiguities, he suggests, requires an ethical sensibility that is fluid and situated and does not allow for commitments and relationships between them to be decided in advance of any partnerships.

Like Milner, these authors who write about praxis in mathematics education name specific systems of privilege and oppression (e.g., racism) while also sometimes locating their writings in our relationships with the earth (e.g., environmental issues, industrial meat production). These various foci and arguments are imperative to consider in the development of a theory as praxis, especially if working toward justice-oriented goals.

Positioning as Praxis: Leanings Toward Action and Change

The word and idea of positioning has been in mathematics education for a couple of decades. Around 2009, positioning theory started to appear in this work. Very briefly, this theory proposes a set of three interconnected and mutually constituted ideas: positionings, storylines, and communication acts. Storylines are "lived stories for which told stories already exist" (Harré, 2012, p. 198). In contrast to the commonly used idea of "role," position is a metaphoric concept that has been described as the discursive process in which people use action and speech to arrange social structures through locating people in conversations "as observably and subjectively coherent participants in jointly produced storylines" (Davies & Harré, 1990, p. 37). Communication acts include not only the specific speech acts but also gestures, physical positions and stances (Herbel-

access to the various rights and duties to perform any action (Harré, 2012), which only implicitly recognizes potential inequities. This point is further supported in its immanentist view that language only exists as concrete occasions of language in use, rather than seeing these as existing outside of interactions. Yet all positioning is seen as fluid and negotiable, that is “people can choose how to act and develop their identities” (Wagner & Herbel-Eisenmann, 2009, p. 3). Such grounding opens up possibility for change.

In some of my earlier collaborative writings, David Wagner and I adopted a relatively radical perspective on positioning and identified aspects of positioning theory that we found especially fruitful for promoting action and change (e.g., Wagner & Herbel-Eisenmann, 2009). In this radical perspective on positioning, we point out that positioning theory can change “the way mathematics is talked about and [change] the stories (or myths) told about mathematics” such shifts are “necessary for changing the way mathematics is done and the way it is taught” (p. 2). In particular, it is important to note that all positionings and storylines are contestable and contingent:

contestable because whenever one person enacts a certain storyline the others in the interaction may choose to be complicit with that storyline and the way they are positioned in it or they may resist and enact a competing storyline. (Wagner & Herbel-Eisenmann, 2009, pp. 5–6)

...contingent in that different people may see different storylines enacted in any given situation: “two people can be living quite different narratives without realizing they are doing so” (Davies & Harre, 1999, pp. 47–48).

Although David and I highlighted this view because it illuminates one’s freedom to conceive of and engage in alternative practices, we do not explicitly call out systems of privilege and oppression that may be impacting the potential for “equal access” to do so. We recognize the power of myths; for example, we wrote:

though race distinctions are a myth (constructed, not inherent), these distinctions are often the most powerful reality in the lives of people suffering the effects of racism. The word “myth” refers to stories that are well known in a culture. With this sense of the word, calling a story a myth makes no claim about its veracity. Rather, it makes a claim that the story is very well known and formative to the way people think (Wagner & Herbel-Eisenmann, 2009, p. 6).

This central grounding in an immanentist view is one that we have visited, revisited and debated over the time we have drawn on and used this theory.

As I have continued to collaborate with colleagues, we have been compelled by the writings grounded in feminist and post-structuralist work (e.g., Davies, 2008, 2022; Davies & Harré, 1990, 1991; Davies & Hunt, 1994), which have become more central to our perspectives than in our early work. For myself, these perspectives are ones that also embrace viewpoints that are especially critical of systems of oppression like patriarchy and embrace and encourage attention to contradiction. As Davies and Harré (1990) state:

If we want to talk about ‘sexism’ or ‘ageism’ in the use of language, what we are talking about is highlighting of certain past conversations as morally unacceptable exemplars for talking and writing now. The basis on which a cluster of past conversations can be deemed to be objectionable as exemplars for speaking now, is not whether the speakers in the past or present intended their speaking to be derogatory of women or the aged. Rather, it is because it can be shown that, as in the past, there can be negative, even if unintended consequences of those ways of talking (pp. 44–45).

Drawing further on feminist work and connecting more centrally to postmodern perspectives, these authors develop the ideas to focus on lived experiences “as inherently contradictory and the appearances of coherence and non-contradiction as discursive constructions” (Davies & Harré, 1991, p. 2). In this piece, they develop a view of positioning as the production of self and the ways people constitute themselves as people and particular kind of people and center contradiction. Often this view is juxtaposed with modernist views of various statements being seen as faulty socialization rather than seen as a contradictory statement that, instead, occurs in contradictory discourses. The implications, they argue, are twofold:

- 1) Increased insight into one’s own subjectivity in all its complexity as it is constituted through varied and contradictory discourses;
- 2) Increased political competence in dealing with unacceptable subject positions since their creation can be located within particular discourses (Davies & Harré, 1991, p. 6).

The remaining part of this article by Davies and Harré, then, focuses on articulating these implications for a more centrally focused feminist, postmodern view of positioning.

Davies (2008) later brings in work by scholars like St. Pierre, Deleuze, and Butler and develops the idea of contradictions to write about the ethical necessity of disruption as a responsibility. This is a line of work to explore further related to positioning theory and its potential for action and change. As suggested in the previous section about Freirean perspectives, this version of positioning theory also needs to be carefully considered through the work of scholars who write about racism, settler colonialism, and intersectionality.

Two Illustrations: Beginning Attempts of Positioning as Praxis

There is now a body of work using positioning and positioning theory in mathematics education, yet a review of this work indicates that the majority of it uses these ideas to do empirical research and not necessarily to engage change. Together with collaborators, I am currently working on a literature review of this work that might surface how various authors may implicitly address praxis. Because this work is in progress, here I offer two examples of early attempts in my collaborations with university- and teacher- researchers to engage positioning as praxis. As pointed out above, Freirean ideas and commitments about praxis are related to and have influenced participatory research. Osibodu et al. (in press) summarize participatory work as having the following commitments: “1) historically marginalized communities are co-researchers, 2) disparate forms of knowing are brought into continuous contact, 3) people, institutions and practices are historicized, 4) tensions are embraced as spaces for learning, and 5) practices are renegotiated towards making social change¹” (p. 3–4). Although not fully participatory research, both of these projects draw on participatory research methodologies which align well with the perspectives about praxis included in the previous section. One of the partnerships has been ongoing for more than 10 years and involves teacher action research as a way to counter the deprofessionalization of teachers and, increasingly, the integration of youth’s ideas and perspectives; the other is in its second year

¹ An important point these authors make about the process of articulating a set of commitments is that: “The commitments set out here are not constitutive of this paradigm, nor are they exhaustive or specifically distinct from each other. Like fingers of a hand, they function in a mutually beneficial way” (p. 5).

and engages participatory approaches with teachers, school leaders, community members, youth and families in which we are identifying and reframing storylines toward co-developing strengths-based pedagogies in mathematics education.

Example One: Mathematics Discourse in Secondary Classrooms (MDISC)

From 2009–2014, I was involved in piloting and co-designing professional development (PD) materials, *Mathematics discourse in secondary classrooms* (MDISC, Herbel-Eisenmann, et al., 2017a), that engage mathematics teachers in considering how they might intentionally develop discourse in their classrooms that is productive (i.e., supports students to learn mathematics and mathematics discourse practices) and powerful (i.e., attends to supporting students’ positive mathematics identity development) (see, for example, Herbel-Eisenmann, et al. (2013) for more details about the materials). The MDISC materials include classroom artifacts (e.g., audio, videos, transcripts, tasks, student written work) from a previous partnership. Teachers explore these artifacts using ideas from systemic functional linguistics (e.g., Gibbons (2006; 2009); Pimm (1987); Schleppegrell (2007)) and positioning (e.g., Wagner & Herbel-Eisenmann, 2009). These ideas are used in reflections and prompts before specific terminology is introduced in the materials and the concepts of, for example, mathematics register and positioning are introduced through “touchstone” readings, which are short syntheses of literature and findings about the ideas. The touchstone document about positioning focuses on the positioning of people and the positioning of mathematics. Very briefly, in the positioning of people, teachers’ attention is drawn to: (a) interactions between/among students and issues of status (Cohen, 1994), smartness (Featherstone, et al., 2011), and voice are highlighted and (b) interactions between the teacher and students, within which aspects of authority (e.g., Wagner & Herbel-Eisenmann, 2014), agency, control, and how interactions with students might contribute to students’ ongoing identity development are highlighted. The positioning of mathematics emphasizes how the various activities, tasks, and words teachers use in relationship to the doing of mathematics shapes what students come to think it means to know/do mathematics, calling into question the storyline of typical school mathematics.

(My co-authors and I decided to identify this as a type of positioning so that the MDISC materials did not have to bring in the additional idea of storyline.) After a year-long study group using the MDISC materials, teachers then choose ideas they want to work on and are supported to engage in cycles of action research to intentionally change and study their classroom discourse practices. In this way, following the study group, the research and learning draws on participatory approaches to work with teachers.

One of group of teacher-researchers (TRs) who piloted the MDISC materials has now been part of a ten-year partnership continuing this work. The TRs have especially taken up and worked on the idea of positioning not only as a way to talk and work on their classroom discourse practice (see Busby, et al., 2017), but also as a way to disrupt deficit-based language that is sometimes used in the group. In terms of the former, early on, they questioned and changed the types of activities and mathematical tasks with which students engaged by adopting new curriculum materials. After working on intentionally using a set of “teacher discourse moves,” they were able to increase the quantity and quality of participation by most students in the class. They saw this as progress in supporting students to explain and justify their thinking, share and learn from their mistakes, and share authority with students, thereby creating space for students to express their agency. They struggled sometimes to loosen their control on what was happening in the classroom and talked about this both in presentations at conferences and in our study group sessions. They used ideas related to positioning and to understanding students’ perspectives (e.g., Cook-Sather, 2002) to develop a range of surveys and discussion prompts to learn more about students and what they wanted in their mathematics classrooms (see Busby et al., 2017). When issues or tensions seemed to come up, some of the TRs engaged students in brainstorming about how to do things differently in the classroom to resolve the issue or tension.

Alongside these new ways of understanding students’ perspectives, the TRs also grew concerned about who was *not* participating as often, for example, they noticed that many students of color did not participate as much as their white counterparts. They did not see this as an inherent

problem of the students, but rather considered the ways their classroom practices may have contributed to the lower participation. The TRs and I also talked about how implicit bias may come into play and welcomed a new colleague, Dr. Niral Shah, to collaborate with and use a web-based tool that creates data analytics related to student participation (see Reinholz & Shah, 2018). As a result, the TRs started to systematically study and develop strategies to disrupt these patterns and better support their students of color and girls (see Herbel-Eisenmann & Shah, 2019). The TRs made changes to their classroom discourse practices and, although they saw a difference across the school year, sometimes still struggled to engage some of the students in discussions. Thus, some of the shifts in attention to positioning in immediate classroom interactions have raised the prominence of student perspectives as well as how race and gender might be impacting the ways teacher-researchers interact with and support student learning. This is an ongoing project that, like many things, has been disrupted by COVID.

Example Two: Mathematics Education in Indigenous and Migrational Contexts (MiM)

The second example of an ongoing project drawing on ideas from positioning theory as praxis can be found in the *Mathematics Education in Indigenous and Migrational contexts: Storylines, Cultures and Strengths-based Pedagogies* project. This international collaboration involves teachers, youth, families, and community members in Norway as well as educational researchers and teacher educators from Norway, Sweden, Canada, and the USA. Taking a focus on storylines, the project addresses how different languages and cultures might be challenges or supports for mathematics learning of Indigenous and migrated youth in Norway. The project design is responsive to the diversity of these groups of youth by drawing on participatory approaches to understand a range of available storylines and then working together with teachers, community members, families, and youth to develop and evaluate strengths-based pedagogies that counter or reframe storylines based in deficit perspectives and build on storylines the youth and families see as important or valuable. MiM brings multicultural/multilingual contexts into conversation with each other by identifying pedagogies that support positive student experiences and sharing of these

pedagogies across contexts. At this point in time, COVID has disrupted some of our plans and the project team has mostly identified storylines in Norwegian media (Andersson et al., 2021; 2022b) and analyzed interviews from school leaders (Andersson et al., 2022a) to understand the storylines they bring to their work with Indigenous and migrant students. Our project team is still in the process of developing relationships with students, community members, and families. Because the work is participatory in nature, the process by which these storylines will be brought forward in the work (or not) is yet to be determined, but the goal is to develop or use ones that our partners find amenable to strengths-based pedagogies and to develop possible new ones based on conversations with our partners.

Conclusions and Questions

In this paper, I have briefly offered an overview of praxis in education and in mathematics education, while recognizing there is more to say about what this complex idea/practice means. Because it is grounded in many different histories and traditions, and the history of one's own context of work is central to engaging praxis, it becomes even more complicated because one cannot just 'take up' the idea of praxis from authors and move it to another context. Rather, the idea of a praxis of uncertainty must be central to engaging praxis in humanizing work related to justice. I connected some of the key ideas from praxis to some of the central tenets of positioning, drawing particularly on the work of Davies, who like Stinson and Bullock (2012) in relationship to praxis, merge various theories into positioning theory. This sort of hybridization of theories is important in considering positioning as praxis because it allows us to bring in critical, feminist, postmodern, and decolonizing perspectives to our reading/use of positioning. I shared two examples of ongoing work, one that has resulted in change across a mathematics department in one school and one that is still in its early stages. Both draw on various types of participatory methodologies, working closely with teachers (who then more centrally included students' perspectives in their decision-making) and school leaders (in one case) and teachers, school leaders, youth, families, and community members (in the other). Although engaging positioning as praxis has supported change, some

questions that have arisen include: How do we (as a field and within these projects) engage positioning as praxis but also disrupt “practice architectures” (Kemmis, 2008) at a broader systemic level by changing storylines more broadly? As a field with predominantly white researchers, how do we honor the traditions offered by Black feminists while continually interrogating and de-centering whiteness?

Acknowledgments: This research is funded by the Research Council of Norway (Andersson principal investigator), the National Science Foundation (NSF, Award #0918117, Herbel-Eisenmann, principal investigator), and the Create for STEM Institute at Michigan State University (Herbel-Eisenmann & Shah, co-investigators). Any opinion, findings, conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of NSF.

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